



## Petroleum and Petrochemical Bulletin

### FREE WATER DETERMINATION

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The member companies of the International Federation of Inspection Agencies wish to clarify their position regarding the determination of the amount of free water in an oil cargo.

Increasingly, IFIA member companies are receiving instructions from clients (or their loss control representatives) specifying the water determination method to be used, electronic or manual, and their preferences for the type and brand of water finding paste. Often, these preferences are unilaterally stated, without the agreement of all concerned parties.

There are many types of water finding paste on the market and no standards organization has designated "approved" water pastes. The inspection company is therefore required to select the most appropriate paste to be used based upon the following considerations from existing API standards;

1. **API MPMS Chapter 3.1A Tank Gauging, Section 10.1.5** - *There are many brands of water indicating pastes available that change color on contact with free water. It has been found that, although all pastes react to free water, they may differ. This difference is caused by the adhesion of the oil to the paste, which causes some pastes to give low or spotted readings.*
2. **API MPMS Chapter 3.1A Tank Gauging, Section 10.1.6** - *The following qualities should be known before using water pastes, since there are differences between brands:*
  - a. *Clarity of color change.*
  - b. *Ability to "shed" oil in which the paste is used.*
  - c. *Shelf life (some tend to harden shortly after opening).*
  - d. *Ease of application to the bar and ability to "grip" the bar.*
  - e. *Dense enough not to scrub off during the trip through oil.*
  - f. *Effectiveness equally in slightly alkaline, salt, fresh, or acidic water.*
3. **API MPMS Chapter 3.1A Tank Gauging, Section 10.1.7** - *It is recommended that at all locations the gauger apply two different pastes on the bar for each innage gauge at the beginning of gauging.*  
*After it has been established which paste works best for the given product, the other can be discontinued.*

4. **API MPMS Chapter 17.2 Marine Measurement, Section 5.2.2.3** - *Vessel tanks should be gauged for free water using water indicating paste or other equipment agreed upon by the parties involved.*
5. **API MPMS Chapter 17.2 Marine Measurement, Section 5.2.2.3.1** - *Note 2: It is recommended that two different pastes be applied on the bar for each free water innage gauge at the beginning of gauging. After it has been established which paste yields the highest, continuous clear water cut, the other can be discontinued.*

It is the position of IFIA member companies that when nomination instructions received from clients contain instructions as to the free water method, and/or water finding paste, that is to be used the member company will, where possible, obtain confirmation from other concerned parties to the nomination. If this cannot be achieved, the member company will be obliged to proceed in strict accordance with the standards quoted above, under the conditions of a) and b) below.

a) *Where the manual method is used, on the first tank gauged two different pastes will be added to the bob (or probe). In the absence of agreement of all parties, the selection of the brand of paste will be made by the member company's representative.*

b) *The highest continuous clear water cut obtained, be it by either of the two pastes, or steady interface indication from the electronic device, will be used as the indicator of the oil/ water interface level.*

**Note:** If US Customs and Border Protection (US CBP) are involved, be it import, export, or FTZ movement, then a) and b) must apply without exception.

Under the licensing requirements of the US CBP, Commercial Gaugers agree, amongst other things:

"To comply with the requirements of part 151, Customs Regulations (19 CFR part 151), and to conduct professional services in conformance with approved standards and procedures, including procedures which may be required by the Commissioner of Customs or the Executive Director"

"To immediately notify both the port director and the Executive Director of any attempt to impede, influence, or coerce gauger personnel in the performance of their duties, or of any decision to terminate gauger operations or approval status"

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